

WHAT IS CLAIMED IS:

1. An energy storage device comprising:

a case having an opening;

an electrode assembly disposed within the case, said electrode assembly including at least a first polarity electrode member electrically and mechanically connected to a first electrode tab, and a second polarity electrode member electrically and mechanically connected to a second electrode tab;

a cover disposed to cover the opening of the case, said cover defining a hole; and

a terminal structure attached to the cover, including:

a gasket made of an insulating material and fittingly disposed within said hole,
an electrode insulator member disposed between said first and second electrode tabs,
said insulator member defining a hole corresponding to said hole in said cover, and
a fastening device having a shaft passing through said gasket and said hole in said
insulator member, said fastening device applying a pressure in an axial direction of
said hole in said cover to press said gasket, said cover, said first electrode tab, said
electrode insulator, and said second electrode tab against each other to form a seal,
said fastening device being electrically insulated from said cover.

2. The energy storage device of claim 1, wherein the case is electrically connected to said first electrode member and forms a terminal of the energy storage device, and wherein the fastening device is made of a conductive material and is electrically connected to said second electrode member and forms another terminal of the energy storage device.

3. The energy storage device of claim 2, wherein said second electrode member has a higher potential than said first electrode member.

4. The energy storage device of claim 2, wherein said first electrode member has a higher potential than said first electrode member.

5. The energy storage device of claim 1, wherein said hole has a counterbore.

6. The energy storage device of claim 1, further comprising a washer disposed below said second electrode tab and defining a hole corresponding to said hole in said cover.

7. The energy storage device of claim 6, wherein said washer is made of a conductive material and electrically connected to said second electrode tab.

8. The energy storage device of claim 6, wherein said fastening device is electrically connected to said washer.

9. A method for forming a battery comprising:

providing a case having an opening;

mounting an electrode assembly within the case, the electrode assembly including at least a first polarity electrode member electrically and mechanically connected to a first electrode tab, and a second polarity electrode member electrically and mechanically connected to a second electrode tab;

providing a cover defining a hole; and

attaching a terminal structure to the cover, including:

fitting a gasket made of an insulating material within the hole,

passing a fastening device shaft through the gasket;

mounting the first electrode tab onto a portion of the fastening device shaft covered by the gasket;

mounting an insulator member onto the fastening device shaft adjacent the first electrode tab;

mounting the second electrode tab onto the fastening device shaft adjacent the insulator member; and

causing said fastening device to apply a pressure in an axial direction of said hole in said cover to press said gasket, said cover, said first electrode tab, said electrode insulator, and said second electrode tab against each other to form a seal; and

sealing the cover to the case.

10. The method of claim 9 comprising:

mounting a washer onto the fastening device shaft adjacent the second electrode tab.

11. An energy storage device terminal seal comprising:
a case cover defining a hole;
a first polarity electrode tab electrically coupled to said case cover;
a second polarity electrode tab electrically insulated from said first polarity electrode tab and
from said cover; and
a fastening device having a shaft passing through said hole, said fastening device applying a
pressure in an axial direction of said hole to press said cover and said electrode tabs
against each other to form a seal, said fastening device being electrically insulated from
said cover and electrically coupled to said second polarity electrode tab.

12. The seal of claim 11 wherein:
said first and second polarity electrode tabs each define a hole and said fastening device
shaft passes through each of said electrode tab holes.

13. The seal of claim 11 wherein:
said first polarity electrode tab is electrically and mechanically coupled to a first polarity
electrode, and wherein said second polarity electrode tab is electrically and
mechanically coupled to a second polarity electrode.

14. The seal of claim 11, further comprising a washer disposed below said second
polarity electrode tab and defining a hole corresponding to said hole in said cover.

15. The seal of claim 11, wherein said washer is made of a conductive material and
electrically connected to said second polarity electrode tab.

16. The seal of claim 11, wherein said fastening device is electrically connected to
said washer.

17. An energy storage device terminal structure comprising:
one rivet mechanically coupling a first polarity electrode to a second polarity electrode.
18. The terminal structure of claim 17 wherein said rivet is electrically coupled to the second polarity electrode and electrically insulated from the first polarity electrode.
19. The terminal structure of claim 18 wherein the first polarity electrode is at a higher potential than the second polarity electrode.
20. The terminal structure of claim 18 wherein the first polarity electrode is at a lower potential than the second polarity electrode.
21. The terminal structure of claim 18 further comprising a ring terminal mechanically coupled to the terminal structure by said rivet and electrically coupled to the first polarity electrode.
22. An energy storage device comprising:
a case having an opening;
a cover disposed to cover the opening of said case;
the terminal structure of claim 17 attached to the cover; and
an electrode assembly disposed within said case and including at least the first polarity electrode and the second polarity electrode mechanically coupled by said rivet.
23. The energy storage device of claim 22 wherein said rivet is positive and said case is negative.
24. The energy storage device of claim 22 wherein said rivet is negative and said case is positive.
25. The energy storage device of claim 22 wherein said rivet is positive and said case is neutral, and further comprising a negative ring terminal.

26. The energy storage device of claim 22 wherein said rivet is negative and said case is neutral, and further comprising a positive ring terminal.